

### REMARKS

Claims in the Application. Claims 36-44 have been cancelled from and Claims 45-53 have been added to this application. The Examiner has withdrawn Claim 26. Claims 2 and 8 have been amended. Accordingly, Claims 1-35 and 45-53 are active in this application. Reconsideration is respectfully requested.

Examiner's Rejection Over Dawson. The Examiner has rejected Claims 1-5, 8-12, 15 and 18-21 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,465,792 ("*Dawson*"). This ground for rejection is traversed.

*Dawson* is not directed to a method for inhibiting or controlling inorganic scale formations but rather is directed to a method of selectively reducing the production of aqueous fluids within a hydrocarbon-bearing subterranean formation. Such unwanted water pushes through the formation into the well and is produced with the oil and gas (col. 2, ll.10-15). Since *Dawson* is directed to a different objective than the claims of Applicants, the claims of Applicants are not anticipated by *Dawson*.

Further, since *Dawson* is directed to a method for reducing produced water, it is necessary to crosslink the copolymer (bridging paragraph of cols. 2 and 3 of *Dawson*.) The claimed copolymers of Applicants do not employ the use of a crosslinker. In fact, it would make little sense to employ crosslinking agents with copolymers used for scale inhibition. In light of the differences in the polymeric systems, there is no reason to surmise from *Dawson* that acrylamide copolymers could be employed to inhibit or control inorganic scale formations. Reconsideration of the rejection over *Dawson* is therefore respectfully requested.

Rejection of the Claims over Aften. The Examiner has rejected Claims 1 and 14 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,432,530 ("*Aften*"). This ground for rejection is also traversed.

*Aften* is directed to a method for inhibiting the swelling of clay in oil and gas producing formations. Clay swelling is the result of the influx of fresh water into clay particles. Such influx causes swelling of the clay which, in turn, reduces formation permeability (col. 1, ll. 27-34.). Since clay is negatively charged, the quaternary amine is capable of being absorbed onto the clay surface to prevent clay swelling. *Aften* does not disclose the use of a quaternary amine

copolymer to inhibit or control inorganic scale formations. Reconsideration is therefore requested.

**Examiner's Rejection over Weaver.** The Examiner has further rejected Claims 1, 17 and 23-25 under U.S. Patent No. 4,532,052 ("*Weaver*"). This ground for rejection is also traversed.

*Weaver* discloses thousands and thousands of polymers for the treatment of wells which may be derived from "diallylic monomers" as well as a "acrylamide monomers" (bridging paragraph of cols. 22 and 23). The Examiner has not indicated, however, a citation in *Weaver* directed to the specifically claimed copolymers of Applicants. In any event, the copolymers of *Weaver* are principally used as relative permeability modifiers (RPMs), as the copolymers of *Dawson*, i.e., for gelling purposes for absorption onto the formation surface and to change the ratio of oil to water in order to affect the wettability of the formation. The only reference to "scale" in *Weaver* appears in the bridging paragraph of columns 21 and 22. However, that passage does not disclose the claimed copolymers of Applicants. Neither does it disclose a method for inhibiting or controlling inorganic scale formations as set forth in Applicants' claims. At best, the passage refers to an admixture of acid and branched polymers in order to remove scales from wells and tubular goods. The passage indicates that the *acid* is responsible for the removal of scales. Applicant's invention is not directed to the use of the claimed copolymers in conjunction with an acid for the *removal* of scales. Applicants' claims are directed to a method for inhibiting or controlling a formation of inorganic scales. Reconsideration is therefore requested.

**Examiner's Rejection of the claims over Emmons.** The Examiner has further rejected Claims 1 and 16 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,213,691 ("*Emmons*"). This ground for rejection is also traversed.

*Emmons* discloses a method of removing and preventing scales with a copolymer containing amido C<sub>1</sub>-C<sub>6</sub> alkyl phosphonate groups having a molecular weight between 1,000 to 100,000. The phosphonate of *Emmons* is not a quaternary ammonium salt.

**Examiner's Rejection over Dawson and Brookey.** The Examiner has also rejected Claims 13 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of U.S. Patent No. 6,123,159 ("*Brookey*").

*Brookey* discloses a well drilling and servicing fluid containing a brine which contains soluble salts, such as sodium chloride, potassium chloride, calcium chloride, sodium bromide,

potassium bromide, zinc bromide, calcium bromide or a combination thereof. However, *Brookey* does not cure the deficiencies of *Dawson*, as set forth above. *Brookey* is not directed to a composition for inhibiting scales. Reconsideration is therefore requested.

**Examiner's Rejection over *Dawson* and *Weaver*.** The Examiner has further rejected Claims 22 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of *Weaver*. This ground for rejection is also traversed

As stated *supra*, *Weaver* does not explicitly recite a terpolymer containing an acrylic acid, acrylamide and a quaternary ammonium salt. Further, *Weaver* does not disclose a composition for use in inhibiting or controlling inorganic scale formations. It is unclear why one of skill in the art would have been motivated to combine the references. The Examiner is therefore requested to withdraw the rejection.

**Examiner's Rejection over *Dawson* in view of *Emmons*.** The Examiner has further rejected Claims 27-29 and 31 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of *Emmons*.

As stated *supra*, *Emmons* as directed to the use of phosphonate containing monomers. The Examiner states that it would be obvious to combine *Dawson* and *Emmons* wherein "the motivation for this combination is that iron and zinc sulfides are common inorganic scale formations." (Paragraph 10 of Office Action.) The Examiner's contention, however, is not understood. *Dawson*, as stated *supra*, is not directed to a method of inhibiting or controlling scale formations. In fact, *Dawson* does not even reference "scales". Reconsideration is therefore requested.

**Examiner's Rejection over *Dawson* and *Emmons* and further in view of *Aften*.** The Examiner has also rejected Claim 30 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* and *Emmons* and further in view of *Aften*. This ground for rejection is traversed.

For reasons stated in the paragraph above, no motivation exists to combine the teachings of *Dawson* and *Emmons*. Further, *Aften* does not cure the deficiencies of the combination of *Dawson* and *Emmons* since *Aften* is directed to a method of inhibiting clay swelling.

**Examiner's Rejection over *Dawson* and *Emmons* in view of *Reeves*.** The Examiner has also rejected Claim 32 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* and *Emmons* and further in view of U.S. Patent No. 4,630,679 ("*Reeves*"). This ground for rejection is traversed for reasons stated *supra*. In particular, there is no motivation to combine the teachings of

*Dawson* and *Emmons* which are directed to two completely different objectives. Further, the copolymers of Applicants' claims are distinct from those of *Emmons*. *Reeves* merely disclose a copolymer soluble in a brine having a density greater than or equal to 14.0 lb/gal. *Reeves* does not cure the deficiencies resulting from the combination of *Dawson* and *Emmons*. Reconsideration is therefore requested.

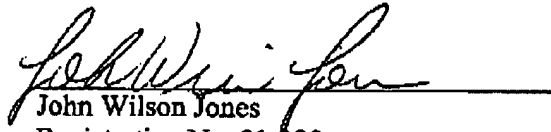
**Examiner's Rejection over *Dawson, Emmons, Reeves and Weaver*.** The Examiner has also rejected Claim 34 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* and *Emmons* in view of *Reeves* and further in view of *Weaver*. As stated *supra*, *Dawson* and *Emmons* are drawn to different objectives using different types of copolymers. *Reeves* does not cure the deficiencies of *Dawson* and *Emmons* for reasons set forth *supra*. It is unclear why one of skill in the art would have been motivated to combine four different references drawn to different objectives and different polymeric systems.

**Examiner's Objection to the Specification.** The Examiner has further objected to Claim 8. Applicants' amendment to Claim 8 obviates the need for further discussion of this rejection.

**Conclusions.** Applicants contend that the claims are patentable over the cited references. A Notice of Allowance should therefore be issued.

Respectfully submitted,

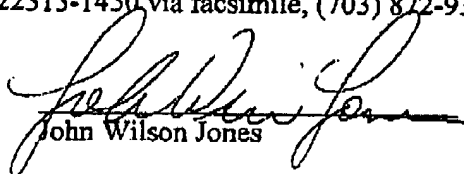
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John Wilson Jones  
Registration No. 31,380

JONES & SMITH, LLP  
2777 Allen Parkway, Suite 800  
Houston, Texas 77019  
Telephone No.: (713) 528-3100  
Facsimile No.: (713) 893-6076

**CERTIFICATE OF TRANSMISSION, 37 C.F.R. § 1.6(d)**

I hereby certify that this correspondence is being transmitted to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 via facsimile, (703) 872-9306 on this 19<sup>th</sup> day of December 2005.

  
John Wilson Jones